

## INTRODUCTION

IN 1950 Harold Ridley reported his first results using a plastic intraocular lenticulus implant to replace it after cataract extraction. This was placed in the posterior chamber, but the procedure was followed by many complications to prevent an anterior chamber lens was introduced.

The concept of the iris supported lenses remained more acceptable, but by that time opinion had swung against all intraocular lenses (Binkhorst, 1961).

The subject of inserting an artificial intraocular lens following cataract extraction had been kept alive owing to the work of Choyce in England and Binkhorst in Holland.

The well-known advantages of the intraocular lenses are :-

Freedom for patient handling, minimum anisokonia, rapid return of binocularity and normal peripheral vision. However, the operation is undoubtedly technically difficult and such complications as corneal dystrophy, implant dislocation, pupil block glaucoma and cystoid maculopathy have led to a conservative approach by many surgeons.

We report here our first case of intraocular lens implantation in Salmaniya Medical Centre after Senile Cataract extraction and probably the first case in the Arabian Gulf region.

## CASE REPORT

K.M.O is a 60 year old Bahraini male patient. He was first seen in January 1979 with chief complaints of progressive diminution of vision over the past 6 months. On examination his best corrected vision was three feet and two feet

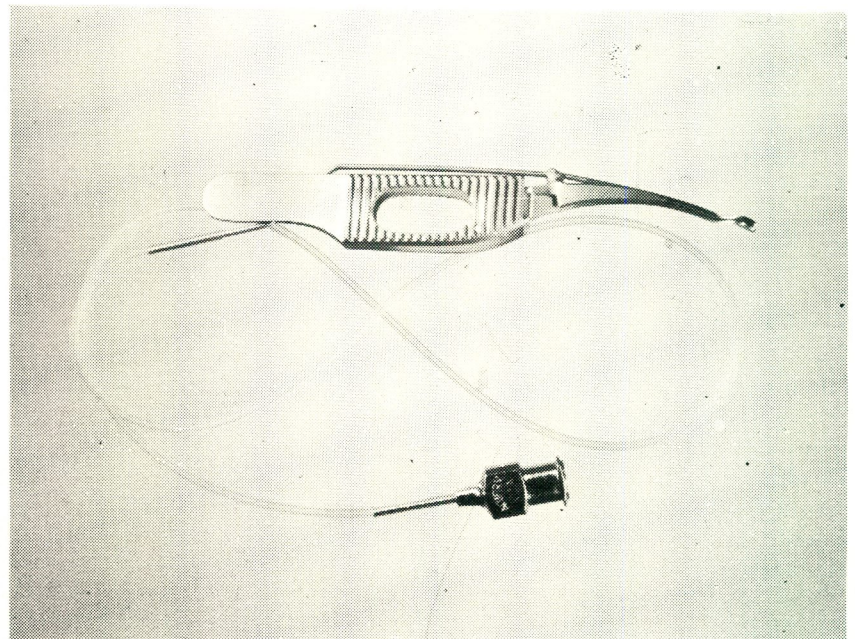
# Intra Ocular Implants

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count finger in right and left eye respectively. Conjunctiva showed an old signs of trachoma, but there were no rubbing eye lashes or any sign of dry eye syndrome. Slit lamp examination showed normal corneal thickness, no corneal endothelial dystrophy and normal depth of anterior chamber. Pupil was of normal diameter and brisk

started. The pupil was slightly dilated with homa-tropine 2% to facilitate round pupil extraction of cataractous lens.

Under general anaesthesia, the patient was prepared and draped in the usual manner. Using Zeiss Unit X-Y ceiling mounted ophthalmic operating microscope the fixation sutures were put on the upper and lower lid and traction suture was put in the superior rectus 180° abexterno limbal incision was performed. Two 8/0 virgin preplaced sutures were put at 1<sup>30</sup> and 10<sup>30</sup> O'clock (Micro point spatulated



to light reaction. The lenses showed dense senile cataract. Application tonometry readings were 14 mm Hg in both eyes.

## PROCEDURE

The patient was given 500 cc 20% manitol I.V. infusion to run over one hour and the drip finished half an hour before the operation

needle 6 mm). All the bleeders at the limbus incision were cauterized away from the edge to avoid necrosis and subsequent fistulae. Two iridotomies were made and 1/2 ml chymotrypsin was injected through the iridotomies. The cataractous lens was extracted with cryoprobe. There was no vitreous loss. The anterior hyaloid membrane was intact and the round pupil and iris was sagging deep. That sign was encouraging to proceed with our plan to insert Federov type four loop iris supported intraocular

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lens. Using a specially made spring forceps (figure) to hold the plastic lens we managed to insert the inferior-posterior-vertical limb first, and the upper posterior limb was placed then. The two pre-placed sutures were pulled and freshly prepared acetylcholine was injected to constrict the pupil. Immediately we could see the pupil became a rectangular in shape. That was a definite sign indicating the normal position of the intraocular lens. Five additional (8.0) virgin corneoscleral sutures were put to secure a water tight limbal incision. An air bubble was injected and the anterior chamber was reformed satisfactorily. Conjunctiva was closed with continuous (8.0) virgin. Twenty mg subconjunctival steroids was injected and pilocarpine ointment and terramycin ointment were put. The eye was closed with pad and shield.

Post. op. the patient was put on pilocarpine eye drops 2% and decadron drops 3 x / day. At the evening of the same day the patient was given 250 ml 20% mannitol I.V. and was finished in 45 minutes. Two days post. op. the air bubble disappeared and the patient was amputated. The post. op. anterior chamber reaction was mild. Unaided visual acuity in the left eye on the 4th post. op. day was C.F. 5 meters. The cornea showed slight increase in thickness. The anterior chamber depth was estimated to be 2 mm as we don't have the pachometry device to determine the depth accurately. The reaction was moderate. At that stage the patient was put on diamox 125 mg every 6 hours and topical decadron was increased to two hourly. By that regimen the cornea returned to almost normal thickness and the anterior chamber showed much less reaction in two days.

10 days post. op. the unaided

visual acuity was 6/9. No ciliary injection, few cells and flare. There were few pigment cells on the surface of the lens.

#### DISCUSSION :

The current intraocular lenses (I.O.L) in use are of several types. The one we have used on our patient is Federov 4 loop iris supported lens. This type of lenses have been in use since 1958. It is only since 1970 when all types of I.O.L. moved from the experimental stage to be used clinically on a large number of patients.

Federov type intraocular lenses which we have inserted in our patient have the posterior loops at right angles to the anterior loops (said to have a lower incidence of implant dislocation). The other type of the 4 loop intraocular lens is the Binkhorst iris supported lenses. This group of lenses have 5 mm optic and made of monomer free polymethyl methacrylate (plastic PMMA), weight 14 mg is air with 2 anterior to iris loops and 2 posterior to iris loop of polyimide. Those loops are angled backward (may induce toxicity to endothelium, Binkhorst).

The other types of intraocular lenses are anterior chamber fixated lenses mainly advocated by Choyce Mark. The Choyce Mark VIII implant is particularly valuable in the treatment of unilateral aphakia as secondary procedure in patients unable to tolerate contact lenses, especially when there is free vitreous in the anterior chamber making the use of a pupillary lens difficult. Iris plane lenses, Binkhorst 2 loop iridocapsular lens, Worst Medalion lens, Federov sputing lens, Krasnov extrapupillary lens and the posterior chamber type of intra-ocular lenses also been used by different surgeons. However, the concept of the iris supported pupillary lenses remained more

acceptable and the most widely used are the Binkhorst and the Fedrov intraocular lenses.

The iris-supported method of fixation was chosen because of the advantages of a one stage procedure and because of the favourable long term reports from several sources (Binkhorst and Leonard — 1967; Dallas — 1970; Fedrov 1965). The pattern designed by Fedrov was used because the arrangement of fixation loops seemed easier to insert and the lens less likely to dislocate subsequently. Besides that the optical advantages of an intraocular lens for all patient with aphakia are obvious and particularly in cases of unioocular aphakia.

Jardine and Smith in their early series of 53 patient of I.O. lens implants have shown that the final corrected visual acuity for 7 patients were 6/5, 16 patients 6/6, 9 patients 6/9. The rest of the patients had a visual acuity of 6/12 to 6/60 and there was no patient who went blind. Clayman and Jaffe in 1979 have reported on 1,079 intracapsular implant, patients operated in between May 1974 and December 1977 were included and the post operative visual acuity results were 6/6 to 6/12 in 89.9%, 6/15 to 6/24 in 6.2%, 6/30 to 6/60 in 2.1% and in 2.1% had less than 6/60 vision.

The main complications reported were vitreous loss, inflammatory changes, retinal detachment, dislocation of the lens, glaucoma, corneal changes and macular changes.

In our patient, after one month of follow-up we have no severe complications except for the moderate iritis and transient corneal oedema. For aphakic patients in Bahrain and Arabian Gulf region it is so difficult to wear the contact lens (C.L.), especially the soft C.L. because of the condition of the

weather, the special care need in following a strict regimen in sterilising the lenses and the requirement of a certain technique and dexterity in wearing the contact lens.

### SUMMARY

Case history and the operation procedure of the first case in Bahrain of intraocular lens implant in a 60 year old patient is reviewed. The patient recovered to an unaided vision of 6/9. The history of the I.O.L., the various types and the indications are reviewed in details.

In conclusion we find that such a procedure is not technically easy

and although it is a rewarding operation we should not adopt the unduly optimistic attitude to the extent of performing this implantation on all cataract patients.

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